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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,711	01/13/2004	Jeffrey L. Milner	EJ-7563	2880

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EXAMINER

LANG, AMY T

ART UNIT PAPER NUMBER

1714

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/756,711	Applicant(s) MILNER ET AL.	
	Examiner Amy T. Lang	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1-13-2004</u> .   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: page 5 of the specification discloses a Copper Corrosion Test (CCT) that measures the amount of active sulfur in the extreme pressure additive. The Indiana Stirring and Oxidation Test (ISOT) is disclosed as measuring the copper weight loss. However, it is later disclosed in the specification on page 17 that the CCT measures weight loss. Furthermore, US 5,208,382 on column 6, lines 5-35 teaches that CCT measures copper weight loss in mg. Therefore, it is the examiner's position that the instantly disclosed CCT conflicts with the prior art and should be clarified as to what it is measuring.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 9-11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perozzi (US 5,498,355) in view of Walters (US 5,254,272).

Perozzi discloses a crankcase lubricating oil composition comprised of a hydrocarbyl dithiophosphate salt and a hydrocarbyl polysulfide (column 1, lines 6-10; column 2, lines 29-32; column 9, lines 38-41; column 16, lines 27-28). The hydrocarbyl portion is later disclosed as dihydrocarbyl since the formula of the hydrocarbyl dithiophosphate displays two hydrocarbyl moieties (column 9, lines 55-60). The polysulfide is further disclosed as dinonyl trisulfide (column 16, lines 19-21, 27-40). In light of the specification, which discloses on page 17 that di-t-nonyl polysulfide has a CCT value of 731 and that dinonyl trisulfide encompasses di-t-nonyl polysulfide, dinonyl trisulfide would intrinsically also have the same CCT value and therefore a sulfur activity greater than 125 mg.

The base oil of the composition is a mineral oil with a suitable viscosity for lubricating a crankcase (column 19, lines 23-24). The kinematic viscosity of the lubricating composition, as measured during the L-38 test that determines characteristics of crankcase lubricants, is disclosed as 14.05 cSt at 100 degrees Celsius (column 24, lines 44-49; column 25, lines 1-15). Therefore, the base oil would also share this kinematic viscosity, since it is suitable for lubricating a crankcase.

Perozzi further discloses additional additives in the composition including corrosion inhibitors, rust inhibitors, antifoam agents, and dispersants (column 15, lines

16-19; column 16, lines 13-18; column 17, line 25). The dispersant is further disclosed as a boronated ashless Mannich base dispersant (column 17, lines 25-36, 50-58).

Perozzi does not disclose the (i) lubricating oil for use as gear oil or (ii) the instantly claimed component D in the lubricating oil composition.

With respect to (i) above, the term "gear oil" is an intended use phrase and is given no patentable weight. The examiner's position is supported by case law, which holds that "where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation." *Rowe v. Dror*, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) and MPEP 2111.02.

With respect to (ii) above, Perozzi discloses the addition of one or more antiwear agents including amine salts of phosphorus acids (column 16, lines 19-25). Walters discloses a hydraulic fluid, which is utilized in a crankcase, comprised of a specific antiwear agent (column 1, lines 8-10, 41-45). The agent is further disclosed as a dihydrocarbyl thiophosphate amine salt, which clearly overlaps the instantly claimed component D (column 2, lines 19-31). This antiwear agent, when utilized from 0.1 to 1.5 wt% of the lubricating composition, is advantageous as a lubricating component since it is zinc free and still meets the requirements for a hydraulic fluid (column 3, lines 25-28; column 6, line 33 through column 7, line 5). Hydraulic fluids that contain zinc pollute the land when spillage occurs (column 1, lines 17-25). Therefore, since Perozzi discloses an antiwear agent as an amine salt of phosphorus acid and Walters discloses a specific amine salt of phosphorus acid antiwear agent that is advantageous by not

contributing to pollution, it would have been obvious for Perozzi to utilize the antiwear agent disclosed by Walters.

5. Claims 1, 3, 4, 6, and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walters (EP 0,744,456 A2) in view of Korosec (US 5,171,466) and Amsiol Synthetic Lubricants.

Walters discloses a gear oil lubricant that is comprised of dihydrocarbyl polysulfide and a dihydrocarbyl (mono)thiophosphate amine salt (page 2, lines 37-39; page 4, lines 5-11; page 5, lines 23-24; page 6, lines 3-4)). The dihydrocarbyl polysulfide is specifically disclosed as dinonyl polysulfide or mixtures of di-tert-butyl polysulfide (page 4, lines 13-16). In light of the specification, which discloses on page 17 that di-t-nonyl polysulfide has a CCT value of 731 and that dinonyl trisulfide encompasses di-t-nonyl polysulfide, dinonyl trisulfide would intrinsically also have the same CCT value and therefore a sulfur activity greater than 125 mg. The di-tert-butyl polysulfide is present in the composition from 0.6 to 3.0 wt% (page 15, lines 42-45).

The thiophosphate amine salt is further disclosed as being the product of a dihydrocarbyl hydrogen phosphite, such as dialkyl hydrogen phosphite, sulfur, and one or more amines (page 6, lines 38-57). Since dialkyl encompasses dibutyl, and butyl is a common alkyl group, it would have been obvious for Walters to specifically utilize dibutyl hydrogen phosphite in the method to make the thiophosphate amine salt. The dihydrocarbyl (mono)thiophosphate is present in the composition from 0.04 to 0.25 wt% (page 15, lines 42-46).

Walters additionally discloses additives in the gear oil composition including ashless dispersant, an antifoam agent, corrosion inhibitor, and rust inhibitor (page 8, lines 50-54; page 13, lines 40-45; page 14, lines 1-10). The dispersant is further disclosed as either a succinimide or Mannich base dispersant that is boronated (page 9, lines 5-7, 51-55; page 11, lines 54-58; page 13, lines 15-20).

Walters does not disclose (i) the specific viscosity of the base oil in cSt and (ii) the instantly claimed component C in the composition.

With respect to (i) above, Walters discloses the gear oil lubricant with a viscosity of SAE 80W90 (page 3, lines 49-50). Amsoil Synthetic Oil, another gear oil lubricant, teaches that a lubricant with SAE 80W90 is equivalent to a kinematic viscosity of 14.9 at 100 degrees Celsius (page 2). Therefore, it would have been obvious for the gear oil lubricant disclosed by Walters to also display the same kinematic viscosity.

With respect to (ii) above, Korosec discloses a lubricating composition comprised of succinimide dispersants and additional additives (column 1, lines 1-12; column 19, lines 48-51). The lubricant is also utilized as gear oil (column 24, lines 9-16). One such additive includes a dihydrocarbyl dithiophosphate ester antiwear agent in an amount from 0.01 to 2 wt% (column 25, lines 23-30). The disclosed additives are present in the composition to provide normal gear oil functions (column 19, lines 48-51). Therefore, since Walters and Korosec both disclose a gear oil lubricant with additives present, and Korosec discloses the addition of a dithiophosphate antiwear agent to aid in gear functions, it would have been obvious for Walters to also utilize the same antiwear agent.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walters (EP 0,744,456 A2) in view of Korosec (US 5,171,466), Amsoil Synthetic Lubricants, and Sullivan (US 6,689,723 B2).

Walters, Korosec, and Amsoil Synthetic Lubricants, as discussed in paragraph 5 and incorporated here by reference, disclose a gear oil lubricant comprised of a hydrocarbyl polysulfide, dihydrocarbyl dithiophosphate ester, and a dihydrocarbyl (mono)thiophosphate ester. The hydrocarbyl polysulfide is further disclosed as mixtures of di-tert-butyl trisulfide, di-tert-butyl tetrasulfide, and di-tert-butyl pentasulfide, and more (page 4, lines 13-16).

Although Walters discloses mixtures of the polysulfide, Walters does not specifically disclose the combination of disulfide, trisulfide, and tetrasulfide.

Sullivan also discloses a gear oil lubricant comprised of hydrocarbyl polysulfides (column 1, lines 24-35; column 2, lines 13-22; column 21, lines 56-67). The specific polysulfides utilized are disclosed as a mixture of dihydrocarbyl disulfide, dihydrocarbyl trisulfide, and dihydrocarbyl tetrasulfide (column 2, lines 52-59). This combination is shown to provide good extreme pressure properties to lubricants without adverse effects (column 1, lines 32-35). Therefore, since Walters also discloses a mixture of several polysulfides and Sullivan teaches that a specific mixture of di-, tri-, and tetra-polysulfides provide excellent properties, it would have been obvious for Walters to also utilize this mixture.



7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perozzi (US 5,498,355) in view of Walters (US 5,254,272) and Milner (US 6,133,207).

Perozzi and Walters, as discussed in paragraph 4 and incorporated here by reference, disclose a gear oil lubricant comprised of a hydrocarbyl polysulfide, dihydrocarbyl dithiophosphate ester, and a dihydrocarbyl (mono)thiophosphate ester.

The combination of Perozzi and Walters is silent as to whether the dihydrocarbyl (mono)thiophosphate amine salt is free of phosphites.

Milner teaches that the additive combination of hydrocarbyl polysulfides and dihydrocarbyl (mono)thiophosphate amine salts produces a strong odor (column 1, lines 40-55; column 2, lines 30-44; column 3, lines 16-20). The disclosed examples show that when phosphite was completely converted to the thiophosphate amine salt, no odor was generated (Inventive Example 2, column 4; Inventive Example 4, column 4 through column 5). However, when the phosphite was not completely converted, a strong odor was generated (Comparative Example 1, column 4; Comparative Example 5, column 5). This strong odor invites many concerns from residential areas near manufacturing plants that might lead to the plant closing down by orders from the EPA (column 2, line 59 through column 3, line 9). Therefore, it would have been obvious for the combination of Perozzi and Walters to produce thiophosphate amine salts free of phosphites to eliminate the strong odor.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perozzi (US 5,498,355) in view of Walters (US 5,254,272) and Minn (US 4,282,153).

Perozzi and Walters, as discussed in paragraph 4 and incorporated here by reference, disclose a gear oil lubricant comprised of a hydrocarbyl polysulfide, dihydrocarbyl dithiophosphate ester, and a dihydrocarbyl (mono)thiophosphate ester. Perozzi discloses the method for preparing the thiophosphate ester as any known suitable method (column 10, lines 42-43).

Perozzi does not specifically disclose the method of preparing the thiophosphate ester as the product of dicyclopentadiene and dialkyldithiophosphoric acid.

Minn discloses a method to produce a dihydrocarbyl dithiophosphate involving a reaction mixture of O,O-diethyl dithiophosphoric acid, a dialkyldithiophosphoric acid, and dicyclopentadiene (Example 3, column 3). The reaction produced bis(O,O-diethyl dithiophosphate), which is a dihydrocarbyl dithiophosphate. Since Minn discloses a successful method for producing a dihydrocarbyl dithiophosphate, it would have been obvious for Perozzi to also utilize this method, since the scope of Perozzi includes any suitable method.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy T. Lang whose telephone number is 571-272-9057. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

08/15/2006  
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